COVID-19 patients with chronic disease symptoms at a Tertiary Care Hospital in Turkey

COVID-19 patients with chronic disease

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Abstract

Aim: The aim of this study is to evaluate the treatment of chronic diseases, which have a significant place in the course and mortality from COVID-19, taking into account the experience of a tertiary hospital.

Material and Methods: The study included a group of 407 patients with chronic disease symptoms who were followed up at the COVID-19 Polyclinic of Malatya Training and Research Hospital between August 1, 2020 and December 31, 2020. The research data were examined by the researcher using archive materials of COVID-19 Polyclinic according to the parameters determined by the researcher. The researcher gathered information about these study sample parameters from patient files and saved it in a Microsoft Office Excel file.

Results: In our study, patients with positive PCR test results had 30.9% asthma, 23.6% arrhythmia, 16.4% HT, 10.9% heart failure and 9.1% DM. Among patients with negative PCR results, 20.5% had HT, 17.6% had DM, 16.2% had asthma, 16.2% had arrhythmia and 11% had COPD.

Discussion: Based on the results of the study, it can be concluded that there is a significant association between chronic diseases and PCR test results. This suggests that individuals with pre-existing chronic conditions may be more prone to contracting the virus and testing positive for COVID-19.

Keywords

Chronic Diseases, Course Of COVID-19, COVID-19, Viral Infection, Patient Management

Introduction

In December 2019, a novel coronavirus virus was identified during the investigation of reported cases of viral pneumonia in Wuhan, China. In the early stages of discovery, the virus was called 2019-nCoV, due to its resemblance to the "Severe Acute Respiratory Syndrome (SARS)" virus. Then the name "SARS-CoV-2" was given. Due to the spread of the illness, the WHO declared it a global pandemic in March 2020. As of May 12, 2020, 4.2 million individuals were infected with a new coronavirus strain called Coronavirus Disease 2019 (COV1D-19), resulting in 291,200 deaths [1]. The disease has spread across the globe, infecting over 100 nations. As of July 30, 2021, it was estimated that at least 186 million individuals have been infected, 4,189,148 of them have already died.

Information on the clinical characteristics of the illness was enhanced as a result of the COVID-19 data. At-risk individuals who had COVID-19 infection were unable to receive immediate medical attention, which led to a high case fatality rate [2].

Chronic diseases, in fact, have formed a silent worldwide epidemic, which, when combined with the COVID-19 epidemic, has prepared the ground for the epidemic's effects to be increased. The early data revealed that the disease is more common and has a more severe course in people who have chronic diseases. In a research published in Wuhan in January 2020, 51% of 99 patients had at least one chronic disease, with the majority of these diseases being cardiovascular diseases (CVD), cerebrovascular diseases (CVD), and DM [3].

The purpose of this study is to evaluate the management of chronic diseases, which have a significant place in the course and mortality of COVID-19, taking into account the experience of a tertiary hospital.

Material and Methods

This research was designed as a single-center retrospective study evaluating the management of patients with a history of chronic disease who presented with the complaint of COVID-19 infection to COVID-19 Polyclinic of Malatya Training and Research Hospital between August 1, 2020 and December 31, 2020. The study was approved by the ethics committee of Malatya Training and Research Hospital (approval number: 23536505-000-13874).

Patients who presented with COVID-19 infection to the COVID-19 Polyclinic of Malatya Training and Research Hospital between August 1, 2020 and December 31, 2020 and met the inclusion criteria for the research sample were included in the study.

The epidemiological characteristics (age, gender) and chronic diseases types of the patients constituting the sample of the study were determined. Information about these parameters of the sample of the study was obtained from the patient files and saved in the Microsoft Office Excel file by the researcher.

Clinical evaluation. Severe COVID infection was defined as dyspnea <50% increase in lung infiltration on CT within 24-48 hours, oxygen saturation <93%, PaO2/FiO2 <300, and septic shock [4]. In the center where the study was conducted, CP was applied to these cases.

Statistical Analysis

Within the scope of the study, Table 1 and Table 2 were created to examine the distribution of PCR test results and symptoms in patients. SPSS (Statistical Package for the Social Sciences) statistical analysis software was used to obtain descriptive statistics and evaluate relationships.

Ethical Approval

Ethics Committee approval for the study was obtained.

Results

The distribution of signs/symptoms and PCR test results seen in the patients included in the study is presented in Table 1.

The distribution of PCR test results of patients with a history of chronic disease is given in Table 2.

Table 1. Distribution of signs/symptoms seen in patients and PCR test results.

| | PCR test | | | | Total | |
| | Negative | | Positive | | | |
	n	%	n	%	n	%
Fever	7	3,30%	3	2,70%	10	3,10%
Fever/nausea	7	3,30%	3	2,70%	10	3,10%
Fever/ cough	35	16,70%	21	19,10%	26	8,10%
Fever/ cough/nausea	7	3,30%	3	2,70%	10	3,10%
Headache/nausea	16	7,60%	8	7,30%	24	7,50%
Nausea	19	9,00%	5	4,50%	24	7,50%
Nausea/vomiting	4	1,90%	2	1,80%	6	1,90%
DM/rhythm disorder	-	-	1	0,90%	1	0,30%
Joint pain	16	7,60%	14	12,70%	30	9,40%
Weakness	12	5,70%	4	3,60%	16	5,00%
HT	-	-	1	0,90%	1	0,30%
Diarrhea/fever	10	4,80%	8	7,30%	18	5,60%
Muscle pain	6	2,90%	-	-	6	1,90%
Respiratory distress	55	26,20%	31	28,20%	86	26,90%
CVD	1	0,50%	1	0,90%	2	0,60%
Taste and smell loss	15	7,10%	5	4,50%	20	6,30%
Total	210	100,00%	110	100,00%	320	100,00%

Table 2. Distribution of PCR test results inpatients with a history of chronic disease.

| | PCR test | | | | Total | |
| | Negative | | Positive | | | |
	n	%	n	%	n	%
Asthma rhythm disorder	2	1,00%	-	-	2	0,60%
Asthma	34	16,20%	34	30,90%	68	21,30%
Kidney failure	2	1,00%	-	-	2	0,60%
DM	37	17,60%	10	9,10%	47	14,70%
DM/COPD	5	2,40%	3	2,70%	8	2,50%
DM/COPD/HT	4	1,90%	2	1,80%	6	1,90%
DM/HT	2	1,00%	-	-	2	0,60%
HT	43	20,50%	18	16,40%	61	19,10%
HT/asthma	5	2,40%	1	0,90%	6	1,90%
HT/heart failure	4	1,90%	-	-	4	1,30%
Heart failure	14	6,70%	12	10,90%	26	8,10%
COPD	23	11,00%	4	3,60%	27	8,40%
Rhythm disorder	34	16,20%	26	23,60%	60	18,80%
Total	210	100,00%	110	100,00%	320	100,00%

Discussion

Chronic diseases are those that progress slowly, last three months or longer, are caused by risk factors, have a complicated course, and negatively impact a person's quality of life. These diseases are the primary cause of mortality in developed and developing countries all over the world, and are risk factors that increase case fatality rates in the COVID-19 epidemic [5]. COVID-19 patients had fever, shortness of breath, and radiological findings consistent with bilateral lung pneumonic infiltration. Individuals with advanced age or concomitant systemic disease (hypertension, diabetes, cardiovascular disease, cancer, and other immunosuppressive conditions, particularly chronic lung diseases) are more likely to die [6].

Type 2 DM is one of the chronic diseases that usually accompany COVID-19 disease and impacts the disease's course and mortality. The Centers for Disease Control and Prevention (CDC) evaluated 20,982 patients in China, where the prevalence of diabetes is 10.9%, and found DM in 5% of the patients [7]. In a study from Italy on 1591 patients with severe COVID 19, 180 (17%) of the patients had DM [8].

In many epidemiological studies published on COVID-19, hypertension (HT) is the most common comorbidity. Many observational studies from China have shown that when COVID-19 patients suffer HT, their mortality and morbidity increase [9]. In an observational cohort study of 1004 suspected COVID-19 patients from 25 Chinese hospitals, 12% of 188 patients diagnosed with COVID-19 were found to have HT, compared to 7% in 816 undiagnosed patients [10].

Although comorbidities are less prominent in COVID-19 patients than in DM and HT, studies have indicated that CVDs are important in the progression of infection and mortality. In a retrospective investigation of 1590 cases from 575 hospitals in China, CVD was found in 3.7% of the patients [11]. In a study of 5700 COVID-19 patients hospitalized in New York, where more than 30% of cases are seen, CAD was found in 595 (11.1%) patients and congestive heart failure in 371 (6.9%) [12].

The median age of the 1099 patients in a multicenter epidemiological study in China was 47, the disease was more common in men (52.1%), and 23.7% of the patients had at least one concomitant chronic disease (such as hypertension (HT), diabetes (DM), and chronic obstructive pulmonary disease (COPD). According to the same study, 2.3% required invasive mechanical ventilation, 5.1% required intensive care, and 1.4% died [13]. According to the results of a systematic review by Zhu et al., males were more likely to be infected (56.9%). The main clinical features were fever (80.4%), fatigue (46%), cough (63.1%) and expectoration (41.8%). In the same study, respiratory failure or acute respiratory distress syndrome was observed in 19.5% of cases and mortality rate was 5.5% [14]. When the distribution between PCR test result and chronic diseases was analyzed in our study, it was found that 30.9% had asthma, 23.6% had arrhythmia, 16.4% had HT, 10.9% had heart failure and 9.1% had DM. Among patients with negative PCR results, 20.5% had HT, 17.6% had DM, 16.2% had asthma, 16.2% had arrhythmia, and 11% had COPD. The distribution between the signs/symptoms observed in the patients and PCR test results and PCR test results of patients with a history of chronic diseases are similar to those found in the literature.

The presence of chronic diseases increases the risk of contracting COVID-19, as well as significantly affects the course of the disease in infected patients, causing an increase in mortality and the need for intensive care. Close monitoring and control of chronic diseases will not only positively change the course of the COVID-19 disease, but will also enable the correct use of limited resources in the health sector. With the emergence of the COVID-19 virus, many uncertainties remain regarding some epidemiological, seroepidemiological (related to the identification of antibodies in the population), clinical and virological features of the virus, and related disease. Researche to evaluate these features in different environments is crucial.

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This study was approved by the Ethics Committee of Malatya Training and Research Hospital (Date: 2020-08-06, No: 23536505-000-13874)